

CA2 ALEV 5
19731517
c.1

INFORMATION BULLETIN NO. 7

Public Hearings

CA2 ALEV 19 1973807
Land Use and Resource Development in the
Eastern Slopes - North Saskatchewan 1



3 3398 00135 2870



LAND USE and RESOURCE DEVELOPMENT in the EASTERN SLOPES

NORTH SASKATCHEWAN AND
RED DEER RIVER BASINS

REPORT BY RED DEER
REGIONAL PLANNING COMMISSION

LIBRARY
VAULT 19

ENVIRONMENT CONSERVATION AUTHORITY
ALBERTA



Digitized by the Internet Archive
in 2024 with funding from
Legislative Assembly of Alberta - Alberta Legislature Library



LAND USE

and

RESOURCE DEVELOPMENT

in the

EASTERN SLOPES

**NORTH SASKATCHEWAN AND
RED DEER RIVER BASINS**

**REPORT BY RED DEER
REGIONAL PLANNING COMMISSION**

ENVIRONMENT CONSERVATION AUTHORITY

9912 - 107th Street, EDMONTON, ALBERTA, T5K 1G5

MAY, 1973

The Environment Conservation Authority
presents this publication as background
information for its upcoming public
hearings.

This material was prepared by an outside
agency and does not necessarily express
the views of the Environment Conservation
Authority.

Discussion Paper:

Land Use and Resource Development

in the Eastern Slopes

March, 1973

NORTH SASKATCHEWAN and
RED DEER RIVER BASINS

prepared by: Red Deer Regional
Planning Commission

assisted by: Battle River Regional
Planning Commission


R.R. Cundy, MTPIC, Director
W.G.A. Shaw, Project Planner
T.J. Lindhout, Technician
G. Willems, Technician
J.A. Jensen, Stenographer

M.M. Barrow, MTPIC, Director
R.H. Riddett, Planner
R.B. McDonald, Consultant
J. Oudman, Technician

pp. 1-21, 24, 25
Figures 1-9

pp. 22-24
Figure 10

NOTE: Although prepared by the staffs of the above named Regional Planning Commissions, this does not mean that those Commissions necessarily endorse the contents of this discussion paper.



Digitized by the Internet Archive
in 2024 with funding from
Legislative Assembly of Alberta - Alberta Legislature Library

https://archive.org/details/ableg_33398001352870

INTRODUCTION

In October, 1972 the Government of Alberta through the Environment Conservation Authority announced its intentions to hold a series of public hearings on the Eastern Slopes of Alberta. Land use and resource development of the foothills and Rocky Mountains would be comprehensively examined and discussed during the hearings. One objective of the hearings is to enquire into all potential uses of the Eastern Slopes and to formulate ways in which optimum benefits from the resources, together with environmental conservation, can be achieved for this area, both now and in the future. A second objective is to consider and evaluate the public's views on specific recreational and tourist development proposals for the area. The third objective is to relay these views and the Authority's recommendation thereon to the Government of Alberta.

At the request of the Environment Conservation Authority a series of background papers on the Eastern Slopes is being made available to the public in order to obtain submissions from informed individuals and groups. As part of this series, this paper concentrates upon the upper North Saskatchewan and Red Deer River basins.

It is emphasized that the following is only a discussion paper of relevant background material on the aforementioned watershed basins. It is not a plan for these areas, nor is the discussion complete. The background material is presented in order to inform the public, with the additional purpose to generate thought, discussion, debate and response on present and future directions for these watershed basins.

THE DISCUSSION AREA

Geographical Situation

As shown in Figure 1, the watersheds of the upper North Saskatchewan and Red Deer Rivers are situated in west central Alberta. These basins lie west of the Calgary-Edmonton corridor, approximately equidistant from the two

major metropolitan centers. The discussion area is adjacent to the east boundary of Banff and Jasper National Parks with the North Saskatchewan River valley, and its associated transportation lines, being midway between the tourist resort towns of Banff and Jasper. Because of its central location and proximity to large tourist and provincial resident populations, the attractiveness and potential for human use of these watershed areas is considerable.

The inset in Figure 1 displays the location of the Province and discussion area within North America. The discussion watershed basins are nearly centrally located within Western Canada, but more important they are adjacent to the cross-Canada transportation corridors and the land routes between Alaska and the remainder of the mainland United States. Consequently, accessibility to the area is extremely good.

The discussion watershed basins spawn innumerable streams which feed into the North Saskatchewan and Red Deer Rivers. These major rivers are primary links in the chain of flowing surface waters across Canada's Prairie Provinces. They are important sources of water for Central Alberta communities, industries and farms, while their recreational and aesthetical attributes increase their value to the region. They are also utilized as means for the disposal of treated sewage.

Delimitation and Description

The west boundary of the discussion area corresponds with the east border of Banff and Jasper National Parks (Figure 2). The south boundary is the height of land between the Bow River and Red Deer River watersheds, while most of the north boundary corresponds with the divide between the North Saskatchewan and Athabasca River basins.

While the above boundaries were defined for this discussion paper by the Environment Conservation Authority, the eastern boundary was not. For this background document, the eastern border coincides primarily with secondary roads, water courses and administrative boundaries, including municipal borders

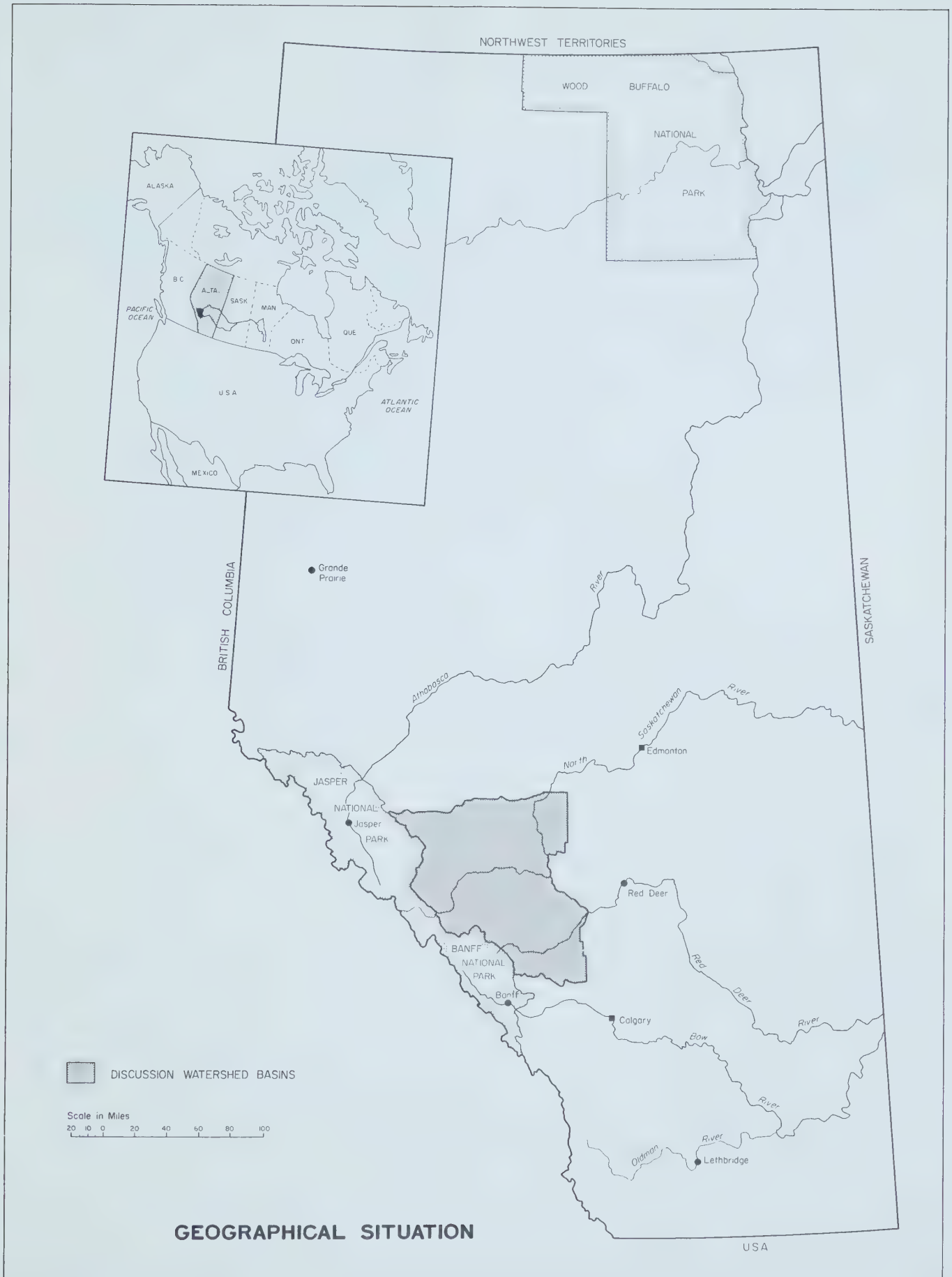


FIGURE 1

and the Green Zone. This boundary was chosen arbitrarily to provide within the discussion area a transition zone between lands which are primarily cultivated and lands which are forest or range.

The North Saskatchewan River's most important tributaries are the Siffleur, Cline, Ram, Clearwater, Baptiste and Brazeau Rivers. In turn, significant branches of the Brazeau are the Nordegg and Blackstone Rivers. The major tributaries of the Red Deer are the Panther, James, Little Red, Raven and Medicine Rivers.

Most major lakes are confined to the eastern portion of the discussion area, these being Buck, Medicine, Crimson, Cow, Swan and Burnstick Lakes. In the west only Pinto Lake is of some consequence, other than newly formed Lake Abraham behind the Bighorn Dam. The Brazeau Reservoir is another large man-made lake.

As shown on Figure 2, the North Saskatchewan watershed covers the northern three-quarters of the discussion area. The remainder in the south and a small portion in the north-east is occupied by the Red Deer River drainage system.

Administrative Units

Eight rural municipalities exist within the defined discussion area. There are four Improvement Districts - No. 14, 11, 10 and 8, three Counties - Wetaskiwin No. 10, Red Deer No. 23, and Mountain View No. 17 and one Municipal District - No. 44. Five Indian Reserves also exist.

Figure 2 also shows the boundary of the Rocky Mountain Forest Reserve. Within this there are three forest units. The Rocky-Clearwater Forest consists of all of the North Saskatchewan watershed except the small triangle of land in the north-west under the jurisdiction of the Edson Forest. The Bow River Forest is coterminous with the Red Deer River watershed. Green Zone lands to the east of the Rocky Mountain Forest Reserve have their forests administered under the adjacent forest unit.

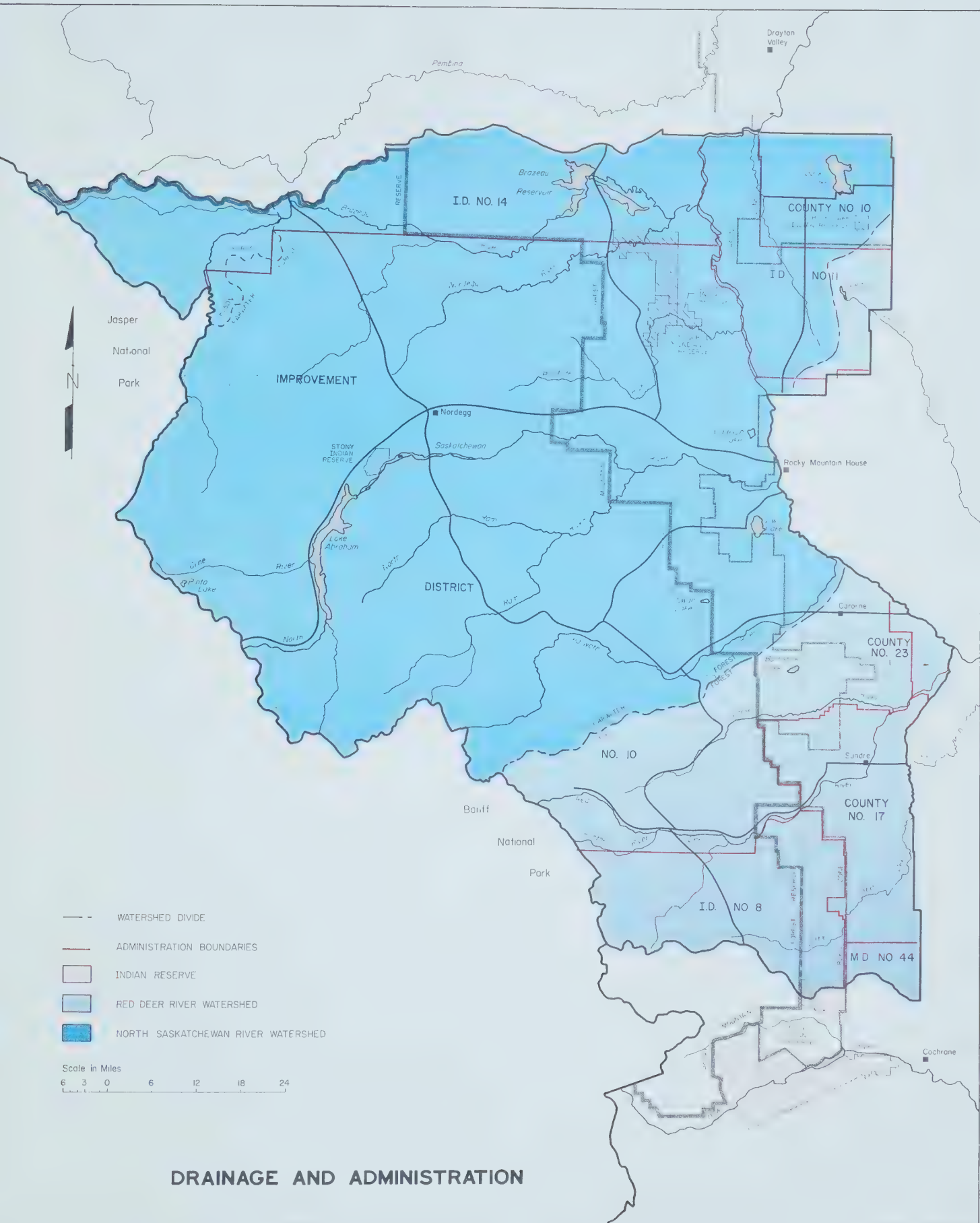


FIGURE 2

Physical Characteristics

Figure 3 is a relief map of the discussion area. It reveals that elevations are lowest in the north-east and increase westward to the high mountain ranges along the boundaries of Banff and Jasper National Parks. Generally, the eastern one-third of the discussion area is a forested portion of the high Western Alberta Plain. The foothills commence near the 4,000 foot contour while mountainous terrain is generally prevalent above 5,000 feet.

The predominant trend of the mountain ranges and foothills is north-west to south-east, while major valleys cut west to east. From the earliest exploration days the North Saskatchewan River Valley has been one of the major passage ways into and through the mountain barrier. Within the discussion area it is the lowest and broadest valley through the eastern ranges of the Rocky Mountains, while the Red Deer River valley is higher and has more restrictive widths. Tributaries of these rivers provide minor passes through various portions of the mountain ranges.

Mt. Cline at 11,027 feet is the highest mountain within the watersheds, while numerous peaks reach over 9,000 feet. The lowest elevation is approximately 2,600 feet, where the North Saskatchewan River flows north out of the region.

Indicative climatic data is available from the weather station immediately east of the discussion area in Rocky Mountain House. The station reports an annual average temperature of 37.1 degrees Fahrenheit with the July mean at 63 degrees and the January mean at 10.5 degrees. Annual precipitation is reported at 21.2 inches with nearly 67 inches falling as snow (the equivalent of 6.7 inches of rain). Westward, annual temperatures decrease and precipitation increases with higher elevations. In rating the capability of soils for agriculture, the Canada Land Inventory indicates that the discussion area has very severe limitations to agricultural production, primarily due to frost hazards although soil quality is usually poor.

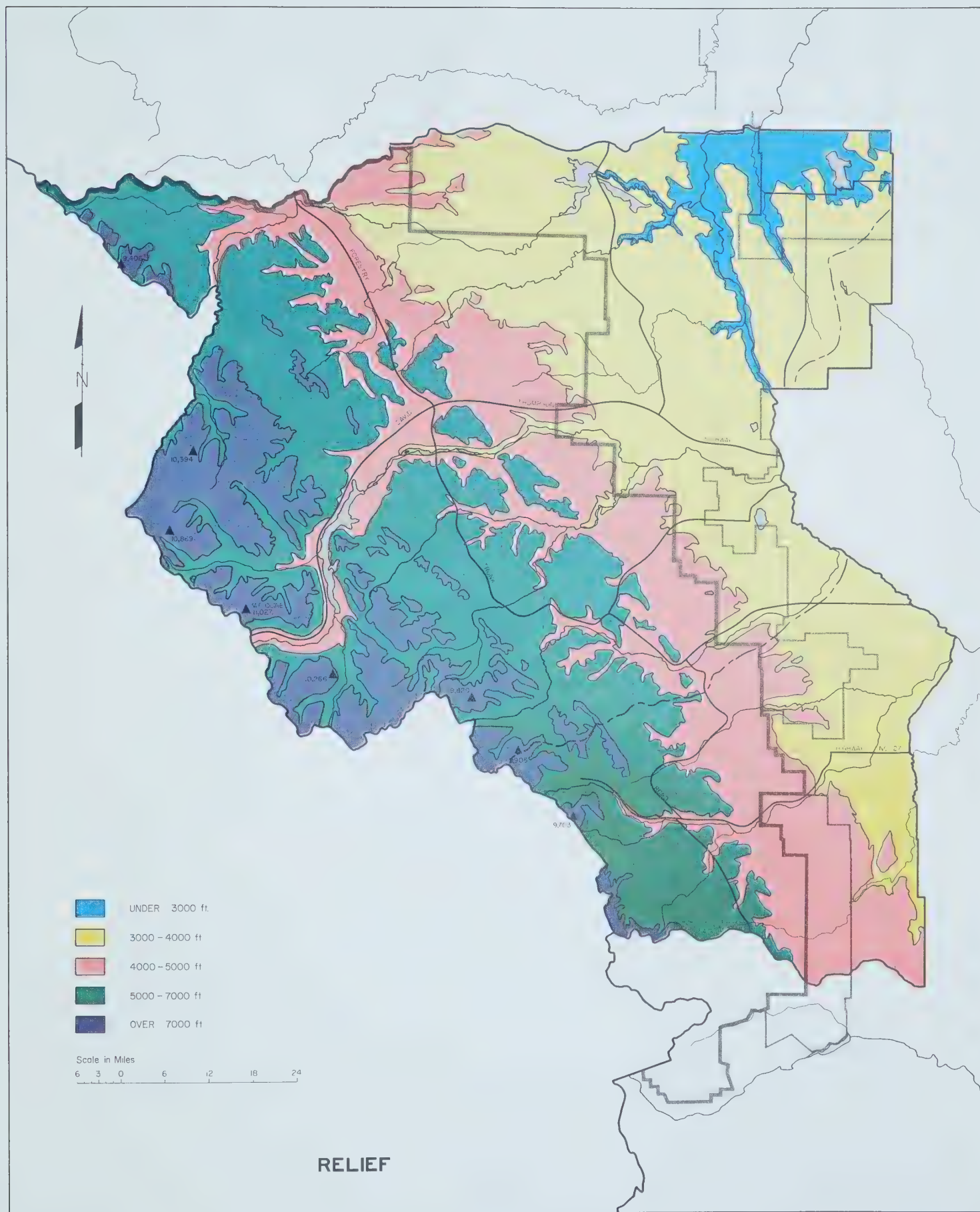


FIGURE 3

EXISTING STATUS

Present Development

The map entitled Land Use and Resource Activity (Figure 4) presents a general overview of existing land uses in the discussion area, together with basic resource activities. A great percentage of the high prairie, foothills and lower mountain slopes are blanketed with forest cover. Some extensive muskeg areas are interspersed in the northern woodlands, while alpine tundra is the dominant vegetation grouping in mountainous elevations above 6,500 feet. Along the eastern fringe of the discussion area pockets of open pasture and rangeland exist, as do small zones of crop lands where more arable soils are present.

East of the Green Zone most land is privately owned and developed, generally for agricultural production. Within the Green Zone almost all lands are Crown owned forest. These are managed for multiple uses including forest production, watershed protection, fish and wildlife management, grazing, recreation development and industrial development related to the recovery of oil, gas, coal and water power resources.

Subsequently, within the forested lands depicted in Figure 4 many activities take place. Recreation campsites are scattered along the Forestry Trunk Road and its major access routes, especially the David Thompson Highway. Countless recreators annually enjoy the bountiful recreation resources of the eastern slopes, partaking in hiking, camping, hunting, fishing, viewing, boating, swimming, skiing, climbing and other activities.

The presence of major pipelines and gas plants, eleven in all, indicates the importance of oil and gas resources within the discussion area. The numerous collection lines which feed into the gas plants and trunk lines are not mapped in Figure 4, however they, along with exploration seismic lines, criss-cross much of eastern and central portions of the forest area. Figure 5 displays existing designated oil and gas fields which cover extensive areas of the eastern half of the watershed basins. In contrast, coal leases are evident in the central and western zones. Active shaft mining for coal ceased at

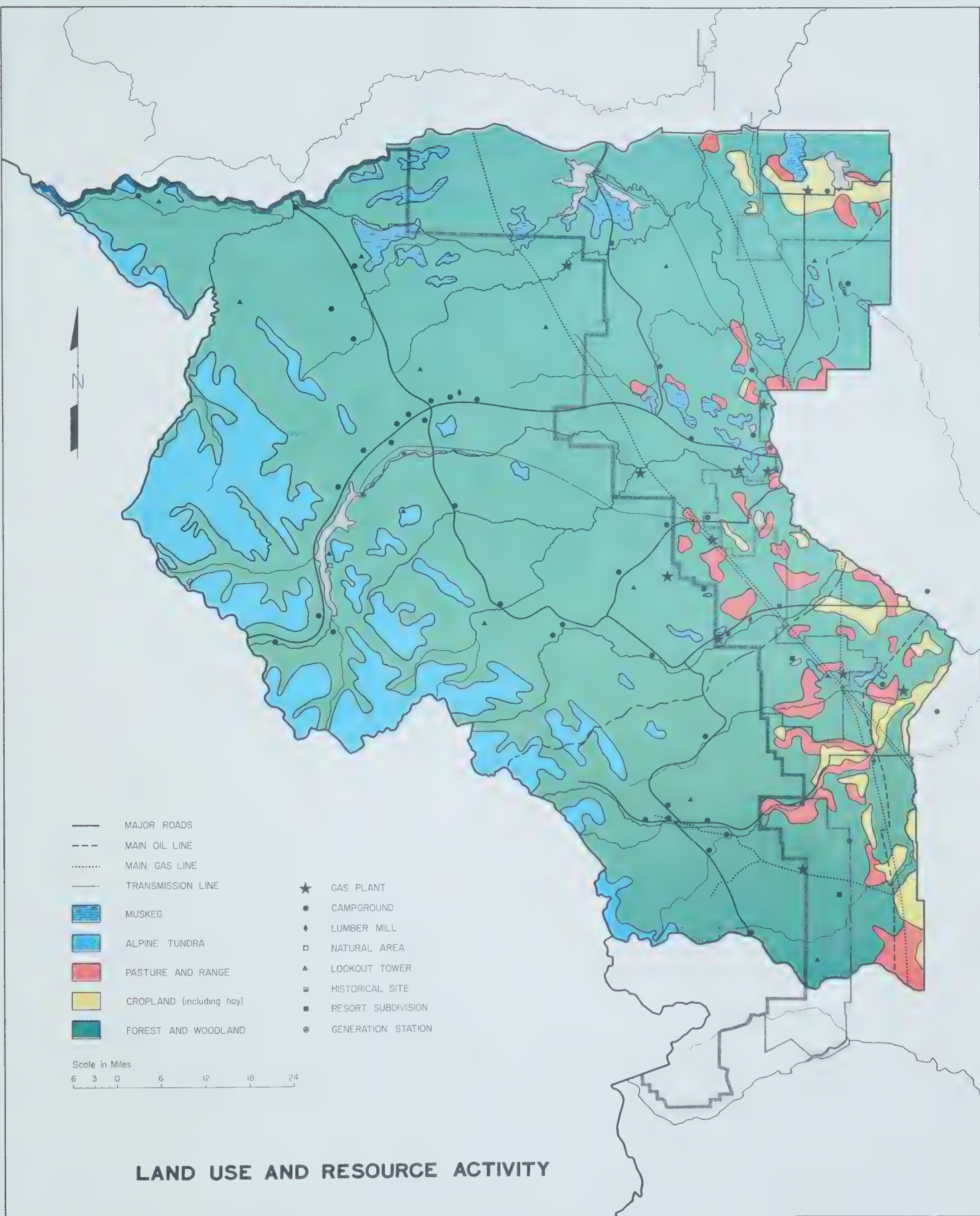


FIGURE 4

Nordegg in the late 1940's, while only exploration operations, especially around the Panther River, exist today.

Figure 5 also indicates that much of eastern lands in the Rocky Mountain Forest Reserve have grazing allotments in which designated numbers of cattle are allowed to graze in season. Considerable portions of the Green Zone are under grazing lease while eastward much of the privately owned wooded land is utilized for range.

The discussion area contains two of Alberta's largest dams and man-made reservoirs. The Bighorn and Brazeau Dams were constructed to promote downstream water erosion control, flood abatement, flow improvement and pollution curtailment while their lakes facilitate recreation development and waterfowl and fish production. Hydro electric power is also produced as an added benefit. The power houses and transmission lines are shown on Figure 4.

Also existing within the study area are two wilderness areas, Siffleur and White Goat, and one provincial park - Crimson Lake. Their extent and location is displayed on Figure 5. Unique features within the area are the historic fort site of Rocky Mountain House and the Kootenay Plains natural area. Some scattered resort subdivisions exist adjacent to forestry access roads or small lakes.

Administration, Legislation and Concepts

With respect to provincial government policies, the administration of land disposition and resource development within the discussion area differs between the White Area and Green Zone. The White Area lies east of the Green Zone boundary and is that portion of the province defined by the Department of Lands and Forests in which public lands are not required for conservation, recreation, wildlife habitat or forestry. These lands are available for sale, except homestead sale applications, for uses which are suitable for the land. Generally, much of this land has been sold to individuals and that which remains Crown property is usually of marginal arable quality and consequently is not suitable for agricultural endeavours. However, these lands are also

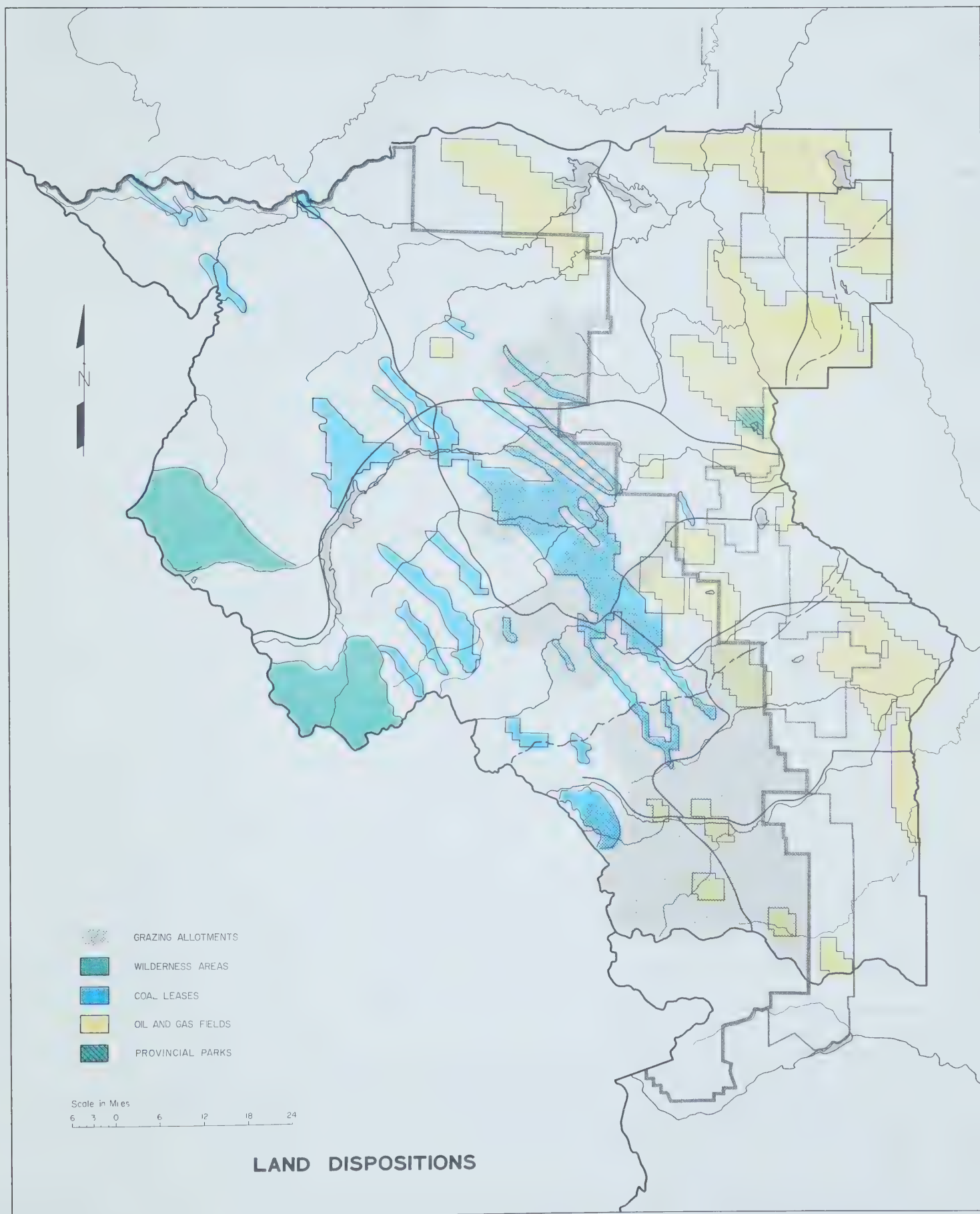


FIGURE 5

available for cultivation lease, grazing lease or grazing permit. Mineral leases are available for most Crown lands, as are various other dispositions.

The Green Zone boundary is defined on most maps in this discussion paper. The Green Area lies west of the boundary and includes the Rocky Mountain Forest Reserve and Indian Reserves. It was first established in 1948 to provide a permanent land base for the growing of timber and to control erratic development of poor land for agricultural use. Lands in the Green Zone were withdrawn from settlement and any disposition of the right to use the surface would be solely for commercial and industrial uses or for other uses as the Minister of Lands and Forests may, in his discretion, consider to be in the public interest. The land classification map produced by the Department of Lands and Forests in 1967 defined the Green Area as "withdrawn from settlement". The April 1971 issue of the same map states that the Green Area is forest lands not available for agricultural development other than grazing and that public lands are managed for the multiple use of resources. This suggests that settlement could be allowed in the Green Area but lands which remain public (Crown) would be managed for integrated resource development.

Leading to the establishment of the Rocky Mountain Forest Reserve, in June of 1947, the Canadian and Albertan governments reached agreement on the organization of an Eastern Rockies Forest Conservation Board, outlined its financing, responsibilities and authority. Parliament passed the Eastern Rockies Forest Conservation Act in July 1947, while the Alberta legislature passed a ratifying act in March 1948. By inference in the Act, water was the most important product of the forest zone and thus watershed management immediately became the primary concern. It was realized, and then accentuated over time, that watershed management and improvement could be attained simultaneously with the utilization of other resources under sound resource management procedures. By 1963 the Board's broad objectives for management of the Forest Reserve were broken into:

- (1) Conservation of the watershed values of the east slopes of the Rockies, involving: (a) protection of the resources, (b) restoration where damage has occurred and (c) improvement over pristine conditions where practicable.

- (2) Full use on a sustained yield basis of all renewable resources under multiple-use management and consistent with watershed conservation practices.
- (3) Non-renewable resources used under controls so as to protect the watershed and other forest resources.

The Forest Reserve Act was passed in 1964 by the Provincial Legislature to officially establish the Rocky Mountain Forest Reserve for the conservation of the forests and other vegetation therein and for the maintenance of conditions favourable to an optimum water supply. The Forest Reserve Regulations (1965) set out regulations for the management and use of rangeland by a system of permits in the Forest Reserve. A 1965 amendment to the Forests Act, 1961 allowed the official designation of forest management units and the determination of allowable cuts in each unit. Each unit is managed as an individual forest in accordance with the principles of sustained yield.

The Forest Act, 1971 was passed to supercede the former act, keeping the same management unit principles but organizing the Alberta Forest Service to administer all matters concerned with the development, management, protection and use of all Crown forests. The main objective in management is to maintain a land base for the long term, continuing production of forest products through the retention and establishment of forest cover. Where compatible with this, other resources in the forests will be developed to their fullest extent. Such policies are similar to those expressed in 1963 by the Eastern Rockies Forest Conservation Board, which will be disbanded on March 31, 1973 and whose duties will be assumed by the Alberta Forest Service.

Therefore, the concepts of the Green Area and Forest Reserve have evolved over time. It certainly appears that watershed and forest management considerations were instrumental in the evolution of these concepts, but through time the theory of multiple use of resources has become more predominant.

SUB-REGIONAL POTENTIAL

Through increased and diversified development, considerable changes have taken place in the eastern slopes during the past thirty years. Tremend-

ous potential for further development still exists in the upper Red Deer and North Saskatchewan River basins, subsequently making these areas one of Alberta's prime resource frontiers.

Transportation

At present only the David Thompson Highway (No. 11) provides unrestricted access into the National Parks through the discussion area. This will remain unchanged for some time since the policy of limiting access routes into the parks has recently been reaffirmed by the Federal Government. Improvements are being made to the David Thompson Highway, such that it should be completely paved in three to four years. This should greatly increase traffic along this route and will generate more use of the forestry roads which feed into it, especially the Forestry Trunk Road.

The Forestry Trunk Road is continuously maintained and often improved, but no plans have been made to pave it, like its southern extension in the Kananaskis area. Cold asphalt surfaces are being applied to some forestry access roads, mainly west of Caroline and south-west of Rocky Mountain House. Increasing pressure by industry and tourists likely will force future road improvements, which in turn will generate additional travel on these roads.

Two other forms of transportation have opposite potentials. An old rail line to Nordegg townsite exists, but present utilization extends only fifteen miles west of Rocky Mountain House. Any expansion and extension of rail services is unlikely unless spur lines are constructed to gas plants in order to transport sulphur to future markets. Good potential exists for air transportation, especially small private aircraft. It is possible that recreation resorts or summer cottage subdivisions could be developed with adequate airfields to accommodate chartered and private holiday flights.

Water Development

With increasing urbanization, industrialization and agricultural production in the Prairie Provinces, there are definite needs to control the flow

of rivers to procure downstream benefits for water users. The Bighorn and Brazeau projects on the North Saskatchewan River system are existing multiple use water management developments. The Red Deer River is devoid of such projects, but expansion in the use of its waters and an increase in pollution potentials dictate the need for a water control project on the river in the near future.

Furthermore, the potential for water diversion schemes exist in the discussion area. Through the construction of a series of dams, storage reservoirs and diversion channels, water from northern Alberta and the North Saskatchewan River system could be diverted into the Red Deer River system and, if need be, into the Bow River. In this way, the arid southern areas could receive water from the water-rich northern zones of the province.

Forest Development

Alberta's forests are managed under a system of sustained yield, where annual cut is not allowed to exceed annual growth. The controlled disposal of timber licences to forest operators ensures the attainment of sustained yield principles. Since nearly all available timber licences are sold, little forest industry expansion is possible without the abandonment of wise management principles, with one exception. Most operators harvest trees only greater than eight inch diameter breast height (DBH), whereas considerable merchantable timber exists in trees down to four inch DBH. The potential volume from smaller trees could be cut without affecting sustained yield doctrines, but only if new equipment to handle smaller wood was installed at lumber mills or if a pulp mill was constructed to utilize wood chips. Consequently, expansion to the forest industry depends on the development of new related or improved industrial facilities in the discussion area.

Energy Resource Development

Within the past ten years new oil and gas discoveries were made progressively westward into the foothills. Large gas discoveries induced the construction of two huge gas plants south-west of Rocky Mountain House (Figure 4)

while smaller plants have been built to process gas from isolated pools scattered throughout the high prairies and foothills. With continual exploration it appears likely that new discoveries will be made, thus assuring the expansion of oil and gas industries into new areas of the foothills. As a by-product of gas processing, huge stockpiles of sulphur are being created. Should markets become available for this previously scarce resource it is possible that rail lines or slurry pipelines could be developed from the gas plants to markets or shipping terminals.

Coal is abundant in the mountainous regions of the watershed areas. Should markets continue to expand or the demand for thermally generated electric power increase, it is possible that coal mining activity could be renewed in this portion of the Eastern Slopes. In all likelihood, strip mining would be the method used to obtain the coal, while new rail lines or slurry pipelines could be constructed to transport the resource if it is not utilized for on-site power generation.

Recreation

Although considerable potential exists for water, energy and forest resource development, it is likely that the greatest potential lies within the realm of recreation. Bountiful wildlife, waterfowl and sport fish, together with an abundant diversity of scenery, topography, climate, forest and water in conjunction with increasing accessibility make the watershed basins prime targets for recreation expansion. Informal recreation activities, such as hiking, hunting, fishing and driving, will increase with accessibility, while formal activities, including camping, boating, skiing (snow and water), golfing, etc., will multiply greatly if commercial recreation resorts are allowed to develop in designated areas. The new policy of the Federal Government to decentralize services outside the National Parks will increase development pressure on access points into the parks.

Country Residential

With greater suburbanization the demand for country residences around urban centers has escalated. Within the discussion area considerable pressure

for subdivision has occurred in the south-east corner within one to two hours driving time from Calgary. Less severe, yet significant, pressure is being felt west of Rocky Mountain House. These pressures will intensify in the future.

Demands are also increasing for summer home subdivisions in isolated areas of the Eastern Slopes. Often the selected areas have high capabilities for public recreation, yet as in the past they could be lost to private leaseholders.

Conservation

Not only is the potential for environmental conservation of the Eastern Slopes considerable, but so is its need. Being adjacent to National Parks, engulfing important watersheds and containing many fragile ecosystems, close control of future development appears warranted. The creation of new provincial parks, wilderness areas and natural sites is a definite possibility, while the preservation of forest cover conducive to proper watershed conditions is essential.

Summary

Figure 6 depicts in a simplified form the resource potential of the discussion watershed basins. Obtained from the Foothills Resource Allocation Study, the mapped information is a generalization of the resource group having the highest capability rating for individual quarter sections of land. The quality of the preferred resource group is not mapped, but the mapping of the preferred resource indicates that its capability is higher than that of other resource groups for that area.

Forest cover comprises much of the preferred resource of the foothills and high plains, except for preferential zones for mineral resources (oil, gas, coal) in large, scattered areas or wildlife resource zones (ungulates, water-fowl, sport fish) along major valleys. Wildlife is also the preferred resource in much of the lower portions of the western mountain area. Recreation is

often the preferred resource along major transportation corridors or some stream valleys, while agricultural pursuits are usually restricted to the eastern margins of the study area. The preservation of the watershed is the preferred activity in most of the high mountain ranges adjacent to the National Parks.

While preferred resources do exist, other resource activities can be compatible with the preferred one. Consequently, while Figure 6 indicates the preferred resource, the optimum use often is a combination of activities which are harmonious with each other. For example, forest harvesting activities under wise operational procedures should not be harmful to wildlife or acceptable watershed conditions and can promote recreation activity. On the other hand, some activities conflict with others; for example, strip mining for coal detrimentally affects watershed conditions as can the construction of recreation access roads. Regretfully, Figure 6 through simplification could not display the interplay of resource activities. However, these relationships are discussed more fully in the following section.

RESOURCE USE IMPLICATIONS

Since resources exist together and often have multiple uses, the use of a resource for one activity affects the use of that resource and other associated resources by other activities. Where the use of one resource detracts from the quality or potential of another a conflict exists. Nonetheless, at times some resource activities can increase the potential use of other resources. The following paragraphs briefly summarize the effects of one resource use on others.

Energy Resources Development

Exploration damage is usually more widespread in the environment than extraction damage, although it is generally less extreme and usually more subject to reclamation. The occupancy of space is usually the greatest conflict with forest production, but erosion can limit seedling growth. Improved

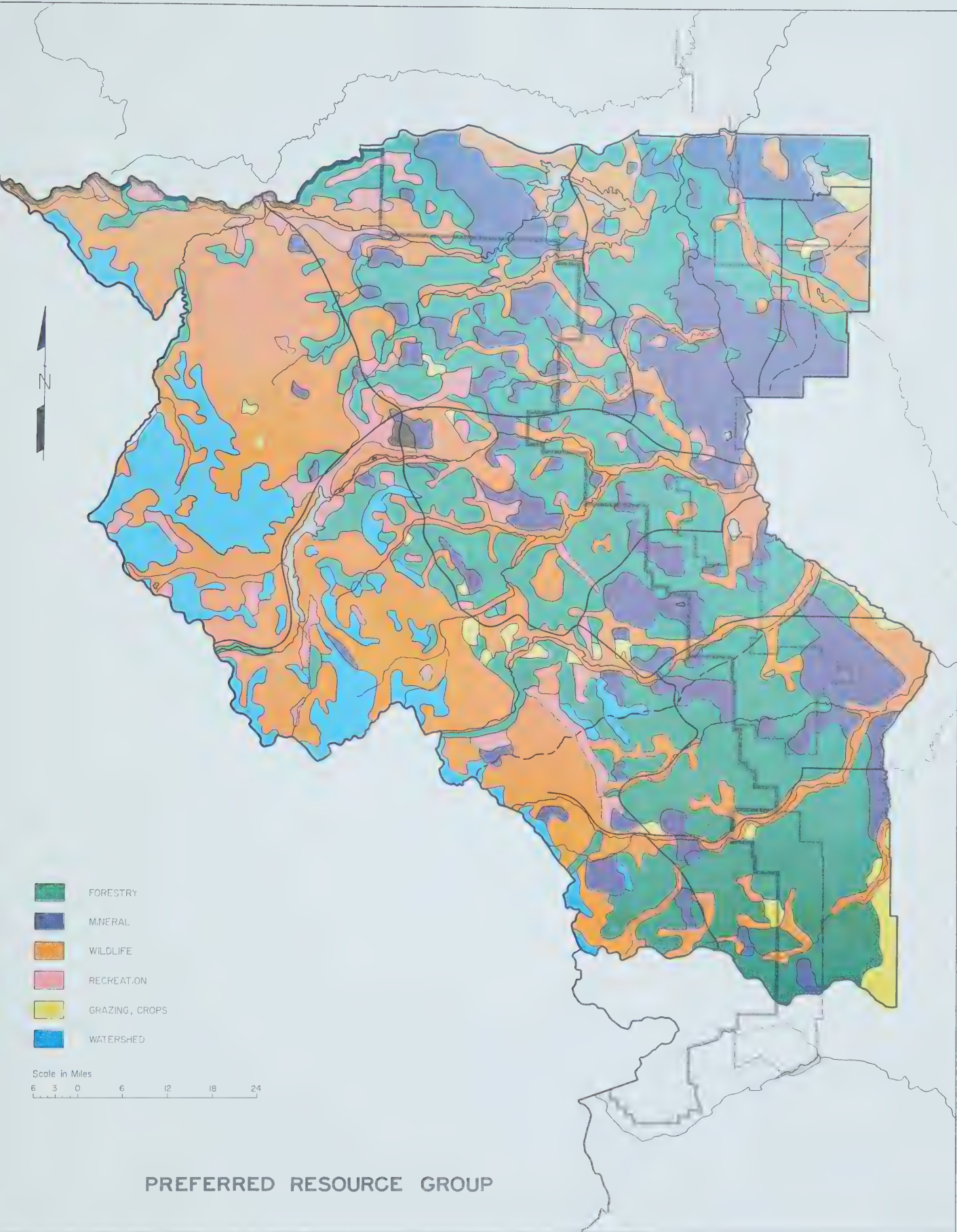


FIGURE 6

access into areas is a positive result for recreation, but increased pressure can be harmful to wildlife production although the clearing of forest provides a succession of vegetation types for animal feed. When erosion occurs, stream siltation is detrimental to water quality and sport fish production. In general, without extreme care, coal, oil, and gas exploration, drilling and mining (especially strip) degrades watershed qualities and reduces the aesthetic appeal of the foothills.

Forest Operations

The effect of forest operations on wildlife is variable. Where ungulate capability is low, improvement of conditions is likely through increasing forage vegetation, whereas in areas of high ungulate capability open areas favourable to game production already exists and logging would be detrimental to it. If logging occurs near streams siltation results, thus harming fish production. However, even under good management water regime changes induced by the removal of forest cover and road construction will cause some stream siltation. In cleared areas range conditions are improved, thus increasing the capability of land to support cattle which in turn could conflict with ungulate production. Forest and crop farming operations are in complete conflict. Mineral extraction activities are usually compatible with forest operations, although space competition can exist. Watershed quality is the most sensitive to forest operations, since even under good management some stream damage occurs. Low intensity recreation, such as hiking or snowmobiling, is compatible with forest operations, but high intensity recreation, a commercial resort for example, is usually related to existing forest cover and is detrimentally affected by logging operations.

Recreation

Non-intensive (or extensive) recreation activities usually involve small numbers of people, subsequently causing little conflict with other resources. Intensive forms of recreation can conflict with other resources, depending on their susceptibility to human pressures. Over-fishing and hunting can harm fish and game populations, while intense snowmobiling activity

in forest areas can harm vegetation and consequently wildlife and the watershed. To many people accessibility by road into wilderness areas and national parks is detrimental to the purpose of these preserved environments, while to numerous other people roads are essential for environmental enjoyment by both passive (e.g. sightseeing) and active (e.g. skiing) activities. Generally, areas with high recreation potential, being able to sustain intensive activities, are limited and in most cases other resource uses are in conflict with recreation activities for these areas.

Watershed Management

When watershed management activities are limited to small measures such as controlling erosion sites or vegetation manipulation, little conflict with other resources occurs. Large scale water management projects, such as dam construction and reservoir clearing, have considerable effect on other resources, both good and bad. The creation of reservoirs usually eliminates sizeable areas of good forest land or winter range land for ungulates, while the quality of downstream lands can be preserved by flood and erosion prevention. The lakes often greatly increase recreation, waterfowl and fish potential, while power generated from the dam is an inducement to industrial expansion.

Grazing

Usually the presence of a small number of cattle in an area does not adversely affect other resource uses. A concentration of cattle, however, can be detrimental to streams and small lakes, thus affecting fish and waterfowl, and being restrictive to big game populations. Nonetheless, watershed damage is minimal when compared to oil and gas exploration, strip mining or timber cutting.

Country Residential Subdivisions

Although presently limited to the extreme eastern margin of the discussion area, country residences will be more widespread in the future through

increases in demand. Country residences divide range and crop lands into uneconomical units and infringe on forest lands, thereby affecting wildlife habitats. Concentrations of country residences can adversely affect ground-water supplies, as well as pollute lakes and streams. They do, however, open more areas for outdoor recreation since improved roads are developed to provide access to country residential areas.

PROBLEMS: CONTEMPORARY AND FUTURE

Numerous environmental problems are associated with land use and resource activity in the North Saskatchewan and Red Deer River basins. These problems are both general and specific in nature, usually similar to problems in other watersheds within the Eastern Slopes, and guaranteed to multiply as development pressures intensify in the foothills and mountains.

General Attractiveness

The potential for development in the discussion watershed areas is tremendous, both by variety and degree. Although the eastern margins are extensively, but not densely, settled the western and central portions are still prime resource frontiers. Continuous forest cover, vast coal deposits and major fossil fuel reserves have attracted primary industrial development to the region and should continue to do so under wise resource management procedures. Abundant water resources and the presence of good dam sites make water development schemes an attractive proposition, especially when the downstream needs of such schemes are apparent. Bountiful wildlife, waterfowl and sport fish, together with a diversity of scenery, topography and climate subject the watershed areas to increasing recreation pressures, especially with improved accessibility via the David Thompson Highway and numerous industrial and forest access roads.

Basically therefore, it is the general attractiveness to all forms of development which is the biggest problem in the watershed areas, since most development spawns numerous localized, but important problems. These usually involve resource conflicts and environmental deterioration.

Roles and Policies

As stated previously, the use of one resource by one activity usually conflicts in some way with other potential uses of that resource or co-existent resources by other activities. The degree of conflict can vary from place to place. For example, if a locality is viewed as critically important for winter range for ungulates, then intense recreation activity or surface mining disturbance could be viewed as detrimental to wildlife production in the area. In other areas where forest values, wildlife capability and other resource capacities are low, then surface mining or recreation activities would be more acceptable. Essentially, the perceived gravity of problems depends on the role to which an area is best suited and the perceived effect on that role by resource activities.

Resource use policies are important in the determination of future directions for the Eastern Slopes. Most policies are formulated to complement the designated roles of areas; all policies and resultant programs cause some problems by allowing or not allowing certain activities in various areas. It is not an easy task to determine for the numerous sub-regions of the Eastern Slopes the best roles, policies and programs which are acceptable to resource managers, developers and the public's many factions. However, the task must be confronted and the best solutions attained. It is to this end which the Eastern Slopes hearings, and this discussion paper, is aimed.

Watershed Differences

Although adjacent to one another and perhaps looking outwardly similar, the North Saskatchewan and Red Deer River watersheds are not alike. The regimes and demands of the rivers, both within the discussion area and downstream, are different while the variety and distribution of resources throughout the respective basin areas are not identical. Consequently, plans and policies cannot be the same for both watersheds, although it would be wise to co-ordinate harmonious programs which are complementary to both.

FUTURE ALTERNATIVES

The present pattern of development in the North Saskatchewan and Red Deer River basins is the result of an evolution of resource needs, development activities and management programs. This pattern will be altered as development pressures change, but the pattern can be controlled by the utilization of comprehensive development schemes for the Eastern Slopes and its various parts.

Many alternate development schemes are available, each embracing different policies which would lead to alternate resource use patterns in the Eastern Slopes, and, in turn, in the North Saskatchewan and Red Deer River watersheds. One alternative is "complete development" where industries and the public are allowed to use the foothills areas as they see fit with little government control. Another form is "complete preservation" where no development or use is allowed. It is expected that these extreme alternatives would gain little support of the decision makers.

Two other, but more practical alternates which lie between the above extremes are present below. These do not represent all other possible alternatives, nor do they contain all possible forms of development. They are not plans, but rather displays of simplified patterns of sub-regional expansion for the purpose of discussion. Both schemes adopt integrated resource management principles where management strategies are applied to achieve maximum output from the multiple use of resources. It should be noted that 'multiple use' can mean many simultaneous uses, one use or non-use depending on the optimizing conditions. The major difference between the following alternatives is the degree of development allowed by each; one is pro-development (Figure 7) while the other is pro-preservation (Figure 8).

In these example alternatives it is the concepts and their likely results which are important, and not the hypothetical details displayed on Figures 7 and 8.

MULTIPLE LAND USE

Major Aspects	Pro-Development (Figure 7)	Pro-Preservation (Figure 8)
Grazing-Cropland	Extensive expansion allowed westward into Green Zone.	To protect cover little expansion permitted.
Country Residential	Widespread development west of Rocky Mountain House and Calgary with medium density allowed.	Restricted expansion in selected areas, with only low densities allowed.
Transportation	Numerous new access roads developed, old routes improved while Trunk Road is paved.	Minimum road construction but old routes upgraded, although no paving.
Urban	Numerous new townsites developed as recreation and industrial service centers (population: 500 - 3000).	Limited number of new service communities developed in key locations (population: 2000 - 4000).
Commercial Recreation	Widespread leases granted for commercial recreation activities, often seasonal hamlets.	Limited leases granted, usually for year round activities in select locations.
Water Development	Eg. Two new schemes - one on Red Deer River with multiple purposes, one on North Saskatchewan-Clearwater for water diversion.	Eg. One multiple purpose scheme on Red Deer River.
Oil and Gas	Further exploration and finds westward, development of numerous new plants to process gas, more pipelines to markets.	Moratorium of oil and gas exploration declared, no further exploration westward.
Coal (strip mining)	Surface mining allowed in various areas of foothills - high quality reclamation.	Surface mining declared detrimental to watershed areas, no activity allowed.
Park, Wilderness	Creation of new Provincial Parks, but Wilderness Areas terminated.	Retention and creation of Wilderness Areas, creation of new Provincial Parks, including River Parks.
Forest, Watershed	Continued sustained yield forest management, multiple use basis, watershed preservation.	Continued sustained yield management, but development restricted as above, tighter game preservation, watershed strictly protected.
Indian Reserves	Possible areal expansion.	Possible areal expansion.

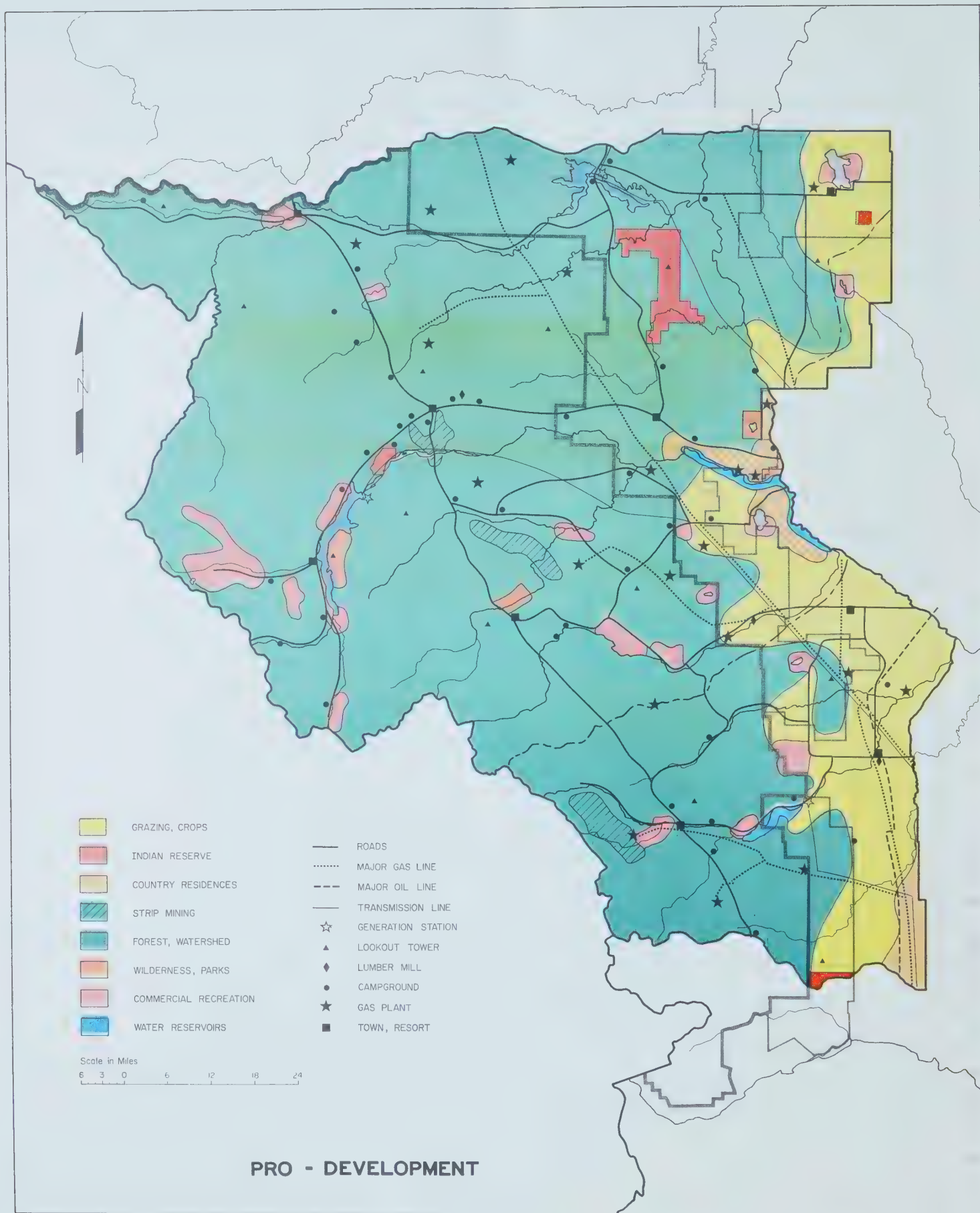


FIGURE 7

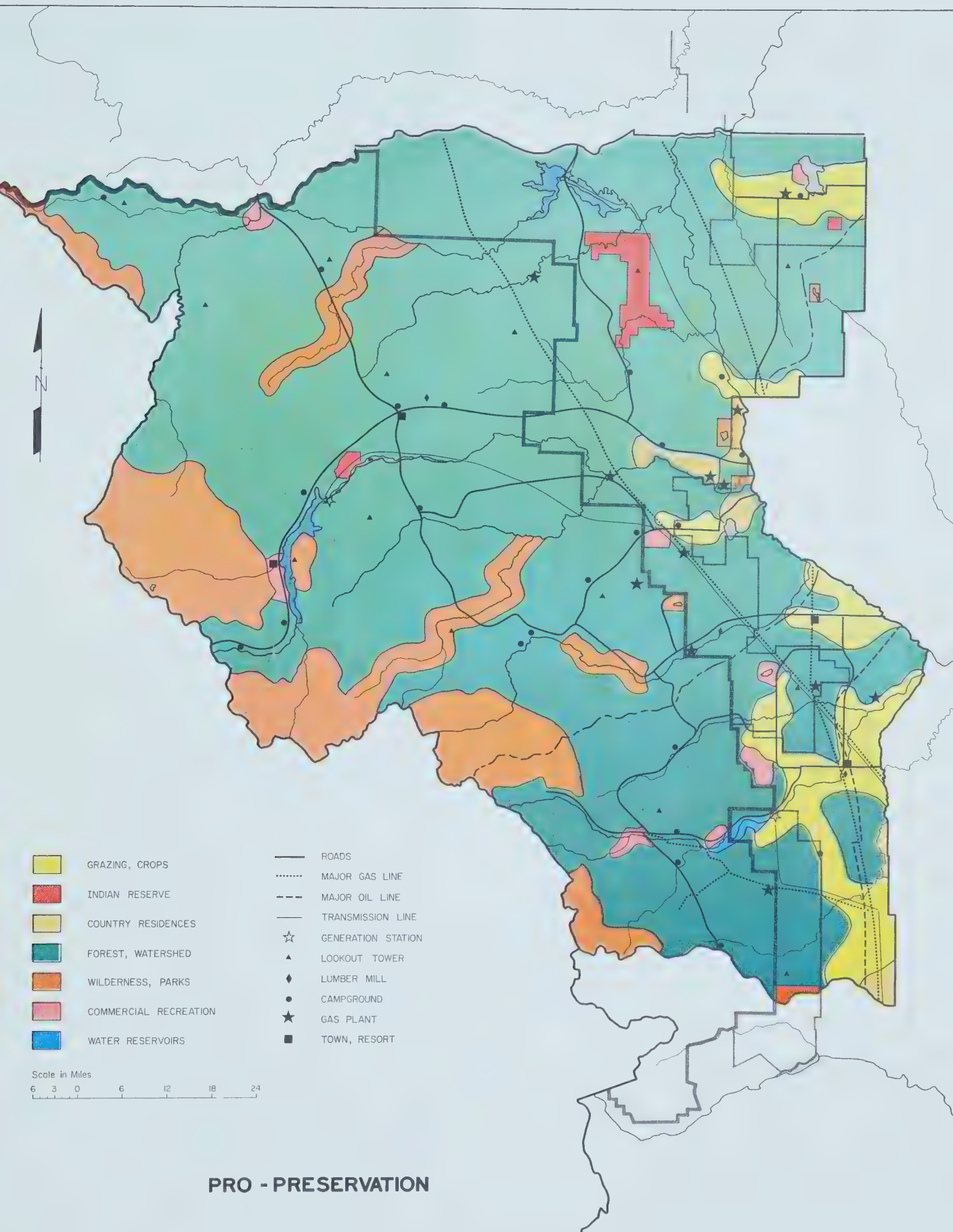


FIGURE 8

LOCALIZED EXAMPLES

Red Deer River Crossing

Described below and displayed in Figure 9 is a detailed hypothetical example of sequential integrated resource development for a localized portion of the discussion area. The example area is adjacent to Banff National Park and consists of lands around the confluence of the Red Deer and Panther Rivers, including Ya-Ha-Tinda Ranch. The area is endowed with a variety of resources, including forests, natural gas, coal, water, wildlife and unique topography, thus lending itself to this example.

Only three assumptions are necessary. One is that government policies would allow development as hypothesized, while a second is that necessary market conditions have motivated the development. The third assumption is that a dam could be constructed on the Panther River.

In order to optimize resource use and environment conservation, it was necessary to formulate a scheme which would integrate forest, coal, gas, water and recreation development, but at the same time advance principles of environment conservation and watershed protection. To this end, the scheme would be pre-planned and would be realized over a period of time through integrated resource management. The scheme, as displayed on Figure 9, contains numerous elements:

Transportation - new bridge over Red Deer River, new Forestry Trunk Road alignment, paving Trunk Road and recreation circular drive, upgrade route from Sundre;

Natural Gas - further development of natural gas wells and collector pipelines, possibility of a sulphur extraction plant and development of a sulphur slurry pipeline;

Coal - obtained by surface mining in restricted areas, usually not valley bottoms or high slopes. Tree cover is harvested first and lands

RED DEER RIVER CROSSING



FIGURE 9

finally reclaimed for formal recreation areas or reforested. The utilization of the coal resource necessitates damming the Panther River, so impounded waters can be used to produce thermal electric power. In turn, the lake is planned for recreation uses also. The power is used locally and transmitted into the Alberta Power Grid;

New Town - developed to house the workers (and their families) from the coal mines, power plant, and gas extraction plant. A regional forestry and wildlife college is developed in the townsite. Tourist accommodations and other recreation services are also provided, further diversifying the economic base of the new community;

Recreation - areas for a golf course, cross country skiing and snowmobiling are developed on reclaimed surface mine areas, as are some camping areas. Other campgrounds are developed to take advantage of other local amenities, both natural and man-made. A downhill skiing area is also developed while large tracts of forest are left intact for various pursuits. Trails and rough roads are maintained into the National Park and Ghost River Wilderness. A recreation village is developed in conjunction with the ski hill and lake;

Forest - limited forest operations on a sustained yield basis on lower slopes. No lumbering allowed on the upper slopes or valley bottoms where watershed, stream course and wildlife habitat provisions are paramount;

River Valley - since this is prime winter range area, this zone is a preservation area where only essential facilities are allowed to be constructed. Strict game control measures would be enforced.

As displayed on Figure 9 and discussed above, the hypothesized series of development is only an example, although the various provisions are realistic. Its importance as an example lies in its concepts, not only for the particular area illustrated here but for numerous sites throughout the whole Eastern Slopes where similar potentials exist for comprehensive site development. In addition, it demonstrates the need of development guidelines for these potential occurrences.

Medicine Lake

Medicine Lake is the site of an Alberta Forest Service recreation area established in the early 1960's. Since then it has been fairly heavily used for fishing, boating and camping. About two miles long and up to a quarter mile wide, the lake is located in a sparsely populated area of rough topography covered mostly by forest, scrub and muskeg, and dotted with smaller lakes and ponds. It is approximately 20 road miles south of Buck Lake and 27 miles north-west of Rimbey, the nearest town.

The dominant economic activity in the area surrounding the lake, shown on Figure 10, is petroleum extraction. This industry has left its mark on the land in the form of seismic cutlines, service roads and pipelines. Prior to this, man's influence was limited to small scale forestry operations, scattered agricultural clearing and some grazing on wild lands. Although most of the area is included in the Medicine Lake Grazing Reserve very little of it has been used for this purpose.

The environmental impact of the oil industry has declined in the past few years, following the completion of its exploration and construction phase, while recreation endeavours are becoming increasingly important. These include hunting and fishing throughout the whole area as well as the more intensive activities at Medicine Lake. Pressure to increase recreational possibilities is being felt in the area, examples being various proposals to expand facilities at Medicine Lake and to build new ones elsewhere, to improve access to the area and to create a provincial park.

The eventual disappearance of the petroleum industry is inevitable. Since there are no other significant non-renewable resources in the area, development and land use policies should be concerned with renewable resources. These should not only reflect demand, revealed in the form of development pressures, but also the capabilities of the area.

One theoretical alternative is to prohibit all development in the area. However, since the land already has been altered considerably from its natural state it would be extremely difficult to return it to pristine conditions.

At their present intensity, agriculture and forestry are not seriously in conflict with wildlife production or recreation. Scattered clearing can add variety to the landscape while the cutting of timber may increase the natural food supply for wildlife. A portion of the area has moderate capability for forestry such that selective cutting could be permitted if demands warrant it. Any expansion of agriculture appears unjustified since the soils have moderate to poor capability for agricultural production. Grazing on wild land should be limited to avoid interference with wildlife production and watershed management.

CONCLUSION AND IMPLICATIONS

This paper has discussed numerous facets of present development, resource capabilities and future directions for the Red Deer and North Saskatchewan watersheds. Both general material and specific examples have been provided as background material on these portions of the Eastern Slopes. Hopefully, what was presented above will motivate thought and discussion on the future of the Eastern Slopes, in light of past development and management. Furthermore, it is essential to the planning and decision process that the public's reactions are registered through presentations at the Environment Conservation Authority hearings.

The presentation in this information booklet complements those in other booklets in the series. If anyone does not agree with anything said above or in the other booklets they should inform the Authority. Should something important to making decisions on the roles and future development of the province's foothills and mountains be missing in the presentation, then this should be told. If anything above suggests acceptable concepts for the wise control of the Eastern Slopes, the Authority should also be informed.

Sub-regional examinations of various aspects of the Eastern Slopes have been published previously. For this discussion area, a report entitled Foothills Road Study (out-of-print) was completed in 1970 by the Red Deer Regional Planning Commission while another document, entitled West of the

Fifth Meridian, was released in 1968 by the Battle River Regional Planning Commission. Both reports have sub-regional plan implications, some of which are now out-dated because of the rapidly changing nature of the Eastern Slopes, but in both cases comments from the public and private concerns were helpful in evaluating various proposals in these documents. It is hoped that in the same way feedback on this discussion paper will contribute to the acceleration of a sub-regional plan for the North Saskatchewan and Red Deer River watersheds to be completed by the respective Regional Planning Commissions.

Remember, the Eastern Slopes are our heritage; they are everyone's responsibility. Should we maintain that heritage for those who visit and for those who follow in the future? From here, where should we go? What should we do?

ENVIRONMENT CONSERVATION AUTHORITY

I WISH TO BE INCLUDED IN THE LIST OF SPEAKERS

AT THE PUBLIC HEARINGS ON: _____

AT: _____ DATE: _____

I PLAN TO SUBMIT A WRITTEN BRIEF;

() prior to the public hearings

() at the public hearings

NAME: _____

ADDRESS: _____

ORGANIZATION: _____

Please clip along line, fold in three and return
by mail.

CLIP ALONG THIS LINE

DATE DE RETOUR _____

[illegible]

LOWE-MARTIN No. 1137

CA 2ALEV 19
73807
c.1

*Land Use and Resource
Development in the Eastern
Slopes Info. Bulletin 7*

DATE

ISSUED TO



LEGISLATURE LIBRARY
216 LEGISLATURE BUILDING
EDMONTON, ALBERTA

